SIGNAMAX
CONNECTIVITY SYSTEMS

Signamax Connectivity Systems 16-Port 10/100 Dual Speed Ethernet Full Duplex Switch Model 065-7530 24-Port 10/100 Dual Speed Ethernet Full Duplex Switch Model 065-7540

USER'S GUIDE

Signamax Connectivity Systems

16-Port 10/100 Dual Speed Ethernet Full Duplex Switch Model 065-7530

24-Port 10/100 Dual Speed Ethernet Full Duplex Switch Model 065-7540

User's Guide

FCC Warning

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.
This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this user' s guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CE Mark Warning

This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

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ABOUT THIS GUIDE

This manual describes how to install and use Signamax 16-port (model 065-7530) and 24-port (model 065-7540) 10/100 Dual Speed Ethernet Full Duplex Switches. They feature either sixteen or twenty-four RJ-45 ports that auto negotiate the presence of 100/10Mbps and full or half-duplex mode. An optional 100BaseFX multi-mode or single-mode fiber optic module enables long-distance connection.

To get the most out of this manual, you should have an understanding of networking concepts such as bridging, IEEE 802.3 Ethernet and 100BaseTX Fast Ethernet, and local area networks (LAN).

For more information about these topics, please refer to the Appendices.

In this manual, you will find:

- Benefits of Ethernet switches
- Model 065-7530 and 065-7540 and their features
- LED functions illustration
- Installation instructions
- Configuration instructions for VLAN, Trunking and port speed
- Specifications

- Ethernet technology, LAN, VLAN and Trunking tutorial information
- Definitions of terms used in this manual

1

INTRODUCTION

Benefits of Switching

Ethernet switching technology has dramatically boosted the total bandwidth of a network. It puts configuration flexibility and bandwidth adaptability into the local workgroups, where the majority of work is generated.

It further eliminates congestion problems inherent to the CSMA/CD protocol, and improves predictable response time under heavy network loads. Expensive routing equipment was used in the past to reduce the congestion under heavy loads.

The new wave of object-oriented client and server applications demands higher bandwidth and tighter integration of client workstations with servers. The old shared-access (hub/repeater) Ethernet technology provides neither enough bandwidth nor sufficiently predictable response time for this new wave of workgroup computing.

Fast Ethernet switching not only satisfies both technical and business requirements, but also preserves the user's existing investment in the huge 10BaseT Ethernet installed base.

This compatibility ensures a path for users to add, change, and migrate to Fast Ethernet as demands emerge. It also provides a low cost and flexible bandwidth solution directly to local workgroups where the majority of work is generated, reducing the need for expensive network equipment.

Signamax Switches

As a Fast Ethernet switch, Signamax 16-port (model 065-7530) and 24-port (model 065-7540) 10/100 Dual Speed Ethernet Full Duplex Switches have 16 and 24 10/100Mbps ports with an optional fiber-optic module, flexibly meeting fiber-optic needs. The straightforward design enables ease of operation while providing superior performance.

Addressing the demand for fiber, Signamax provides an optional multi-mode or single-mode fiber module for the 065-7530 and 065-7540 as an optimum solution for long-distance connectivity. The module supports one SC, ST, MT-RJ, or VF-45 port.

Signamax Switches represent the newest generation in Ethernet switching technology by supporting both 10Mbps and 100Mbps speed and half or full duplex transmission modes on the same port. By using standard auto-negotiation, Signamax provides both a cost-effective way of integrating legacy 10Mbps segments with 100Mbps Fast Ethernet networks, and an ideal solution for extending the distance between two 100Mbps network segments.

Signamax 065-7530/065-7540 switches support port-based Virtual Local Area Networking (VLAN). This advanced feature gives the network administrator a powerful, yet easy-to-use tool to reduce unnecessary broadcast traffic, flexibly segment the network, and enhance network security. The Signamax 065-7530/065-7540 switches fully comply with IEEE 802.3u, 100BaseTX/FX, and IEEE 802.3, 10BaseT standards.

Product Features

- 16 ports (065-7530) or 24 ports (065-7540) with NWay auto-negotiation of 10/100Mbps speed and duplex mode
- Optional 1-port ST, SC, MT-RJ, or VF-45 module
- Plug-and-play
- True non-blocking architecture
- Full wire speed forwarding
- Store-and-forward mechanism
- Back pressure and IEEE 802.3x compliant flow control
- Supports 8K MAC addresses for 065-7530
- Supports 2K MAC addresses for 065-7540
- Port based VLAN & MAC based Trunking for 065-7530
- Port based VLAN & port based Trunking for 065-7540
- Programmable re-configuration for fixed speed and duplex modes
- One uplink port activated by the push of a button
- Front panel reset button

- Front panel status LEDs
- Standard 19" rack-mount size

Packing List

When you unpack this product, you should find the items listed below. Please inspect the contents, and report any apparent damage or missing items immediately to your authorized reseller.

*** Signamax 065-7530 or 065-7540 switch**

*** User's Manual**

*** AC power cord**

*** Rackmount Ears with screws**

*** Serial Cable**

Front Panel

The front panel of the Signamax 065-7530 and 065-7540 switches has 16 or 24 ports, one slot for an optional fiber module, and an array of LED indicators to provide you with instant feedback on the status of the switch.

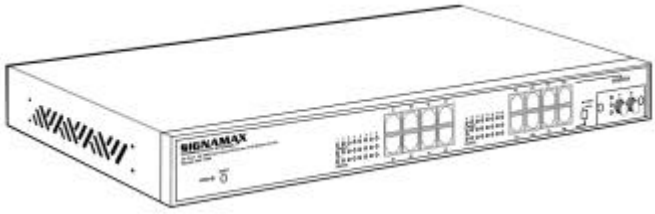

Figure 1: Front panel of 065-7530

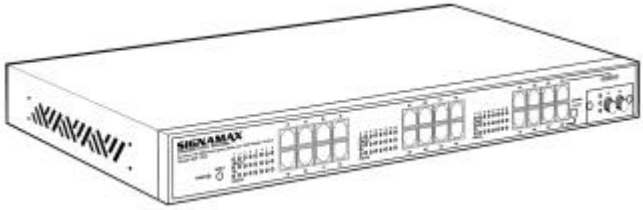

Figure 2: Front panel of 065-7540

Ports

The Signamax 065-7530/065-7540 switches contain 16/24 RJ-45 10/100 Ethernet ports and one slot for the optional module for fiber connection.

The auto-negotiation feature of the 065-7530/065-7540 switches allows communication between 10BaseT (Ethernet) and 100BaseTX (Fast Ethernet) at full or half-duplex mode. If it is desirable to operate at a fixed, rather than auto-negotiated media setting, please refer to the Port Settings section on page 28.

The optional module of the 065-7530/065-7540 switches provides an additional port for fiber ST, SC, MT-RJ, or VF-45. The latter are fiber-optic small-form-factor connectors that are smaller and easier to use. The optional module port also allows the use of single-mode fiber for distances up to 75 km. For information on module installation, please refer to page 17.

The maximum range of a 100BaseTX network connected to the switch is 100 meters with Category 5 unshielded twisted-pair (UTP) cable. A 10BaseT network may range up to 100 meters with Category 3, 4, or 5 UTP cable. As for the length of fiber link between a switch and a Data Terminal Equipment, it is capable to span up to 2 kilometers (1.24 Mile) using 50/125 or 62.5/125-micron multi-mode fiber-optic cable or up to 15/40/75 kilometers using 9/125 or 10/125 micron single-mode fiber optic cable in full-duplex mode.

Expansion Modules

The following is a list of model numbers for the various modules. All TX ports use RJ-45 connectors.

Table 1: Module Model Number

Model	Ports	FX Connector
FO-065-75ST	100BaseFX	ST
FO-065-75SC	100BaseFX	SC
FO-065-75MT	100BaseFX	MT-RJ
FO-065-75VF	100BaseFX	VF-45
FO-065-75SM	100BaseFX	SC(Single Mode, 15Km)
FO-065-75SMED	100BaseFX	SC(Single Mode, 40Km)

Table 2: Module Type and Specification

Speed	Connector	Port Speed Half/Full Duplex	Cable	Distance
10BaseT	RJ-45	10/20 Mbps	Category 3, 4, or 5 UTP	100 meters
100BaseTX	RJ-45	100/200 Mbps	Category 5 UTP	100 meters
100BaseFX (Multi mode)	ST, SC, MT-RJ, VF-45	100/200 Mbps	50/125 or 62.5/125 micron multi-mode fiber	2 km
100BaseFX (Single mode)	SC	100/200 Mbps	9/125 or 10/125 micron single-mode fiber	15/40/75 km

LED Indicator

The array of LED indicators on the front panel conveys status and configuration information to help you monitor and trouble-shoot the switch.

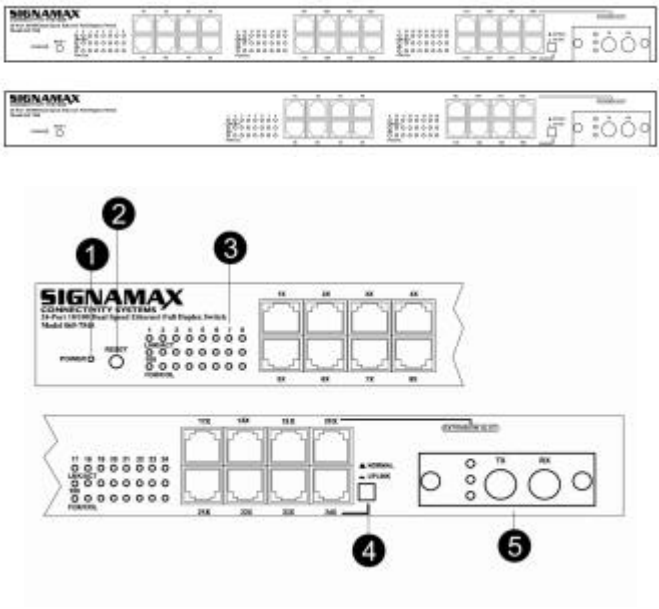

Figure 3: 065-7530/065-7540 Front Panel and LED Indicators

❶ Power

This LED comes on when the switch is connected to a power supply and turned on.

❷ Reset Button

If the Signamax 065-7530/065-7540 switches should become unresponsive, you may perform a reset of the switch by pressing this button.

❸ Port Status

The front panel of Signamax 065-7530 has two segments of eight ports numbered from 1X to 16X and 065-7540 has three segments of eight ports numbered from 1X to 24X. The LEDs are located at the left side of each segment, display status for each respective port. Consult the following chart for clarification.

❹ Uplink Button

Depress to connect to another switch or hub. Affects port 16X for 065-7530 or port 24X for 065-7540 only.

❺ Optional Module LEDs Status

A set of three LEDs displays the status of the optional modular port. Consult the following chart for clarification.

Table 3: Port Status

LED	State	Indication
LNK/ACT	Steady	LINK: The port has established a valid network connection
	Flashing	ACTIVITY: The port is transmitting or receiving data
100	Steady	100Mbps: The port has established a valid 100Mbps network connection
	Off	10Mbps:The port has established a valid 10Mbps network connection.
FDX/COL	Steady	FULL-DUPLEX: The connection is in full duplex mode
	Flashing	COLLISION: Collision occurred in the 10/100 domain.
	Off	The connection is in half duplex mode

Table 4: Optional module port status

LED	State	Indication
100/TX	Steady	100Mbps: The port has established a valid network connection
	Flashing	The port is transmitting data
10/RX	Steady	10Mbps: The port has established a valid network connection
	Flashing	The port is receiving data
FDX/COL	Steady	The connection is in full duplex mode
	Flashing	COLLISION: Collision occurred in the 10/100 domain.

2

INSTALLATION

This chapter presents step-by-step installation instructions for the Signamax 065-7530/065-7540 switches.

Selecting a Site for the Switch

As with any electronic device, you should place the Signamax 065-7530/065-7540 switch where it will not be subjected to extreme temperatures, humidity, or electromagnetic interference. Specifically, the site you select should meet the following requirements:

- The room temperature should be between 32 and 104 degrees Fahrenheit (0 to 40 degrees Celsius).
- The relative humidity should be less than 90 percent, non-condensing.
- Surrounding electrical devices should not exceed the electromagnetic field (RFC) standards for IEC 801-3, Level 2 (3V/M) field strength.
- Make sure that the switch receives adequate ventilation. Do not block the ventilation holes on the side of the switch or the fan exhaust port on the rear of the switch. The power outlet should be within 1.8 Meter of the switch.

Detailed specifications may be found on page 41.

Connecting to Power

Connect the supplied AC power cord to the receptacle on the back of the switch, and then plug the cord into a standard AC outlet with a voltage range from 100 to 240 VAC.

Turn the 065-7530/065-7540 unit on by flipping the ON/OFF switch on the rear of the unit to the **I** (ON) position. The **O** position is OFF.

Connecting to Your Network

Obtain or prepare cables with corresponding connectors for each type of port in use. Consult Table 5 below for cabling requirements based on connectors and speed. Once the connections are made, the switch is operational.

Table 5: Cable Specifications

Speed	Connector	Port Speed Half/Full Duplex	Cable	Distance
10BaseT	RJ-45	10/20 Mbps	Category 3, 4, or 5 UTP	100 meters
100BaseTX	RJ-45	100/200 Mbps	Category 5 UTP	100 meters
100BaseFX (Multi mode)	ST, SC, MT-RJ, VF-45	100/200 Mbps	50/125 or 62.5/125 micron multi-mode fiber	2 km
100BaseFX (Single mode)	SC	100/200 Mbps	9/125 or 10/125 micron single-mode fiber	15/40/75 km

When the uplink button is pressed down, port 16X (for 065-7530) or 24X (for 065-7540) can be used to connect to any port of another hub or switch. To connect two regular RJ-45 ports between any switches or hubs, you need a cross-wire cable. The cable must be a Category 5 shielded twisted-pair or unshielded twisted-pair (STP/UTP) cable for 100BaseTX, or Category 3, 4, or 5 STP/UTP cable for 10BaseT.

Optional Module Installation

Signamax 065-7530/065-7540 offers an optional one-port module for fiber connection. The fiber module is available in either single or multi-mode; it supports either a MT-RJ, SC, ST, or VF-45 connector.

The optional module should be inserted into the extension slot located at the right side of the switch. Port 20X (for 065-7540) will be automatically disabled when optional module is installed. ***Before installation, ensure that the power is disconnected. The module is not hot-swappable.*** Unscrew the cover plate in the extension slot. Pull out the cover plate, which has a non-wired board attached. Slide the module in slowly, following the metal guides. Once it is slid in fully, snap in the module to make a proper connection and tighten the screws.

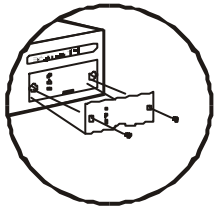

Figure 4: Removal of cover plate

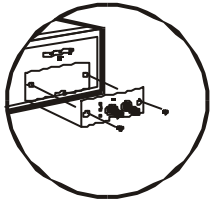

Figure 5: Module being installed

Jumper Settings

The module arrives with pre-set jumpers and should not be reset. Use the jumper settings for trouble-shooting purposes only.

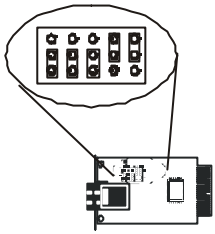

Figure 6: Proper jumper settings for fiber module

3

SWITCH CONFIGURATION

This section explains the configuration of VLAN, flow-control, and port speed and duplex mode setting.

Virtual Local Area Networking (VLAN) enables efficient traffic separation, provides better bandwidth utilization, and alleviates scaling issues by logically segmenting the physical LAN so that packets are switched only between ports within the same VLAN. This also creates secure segments within the existing network. Nodes residing in different VLAN segments cannot communicate with each other although they are connected to the same switch. The resulting security is yet another reason to use VLAN.
Auto-negotiation adjusts the speed and the duplex mode of each port, based on the capability of connected devices. Flow control, or back pressure, regulates transmission between two nodes running at different speeds or duplex modes. Auto-negotiation and flow-control may require disabling for some operations involving legacy equipment. Disabling the auto-negotiation is accomplished by fixing the speed or duplex mode of a port. Disabling of flow control is also performed on an individual port basis.

Setting up the Console Port Connection

To configure these features through the console port, it is necessary to first configure a terminal emulation program in DOS or in Windows, such as HyperTerminal.
Check the switch, cables, and computers for proper installation before configuration.
Attach a PC or any VT100 compatible terminal to the console port on the back of the switch (see figure 7) using the following settings:

Terminal Type	VT100
Port Type	(COM 1~4)
Communication Mode	8 data bits, 1 stop bit, no parity and 9600bps (for initial configuration)
Flow Control	None
Hardware Compression	NA

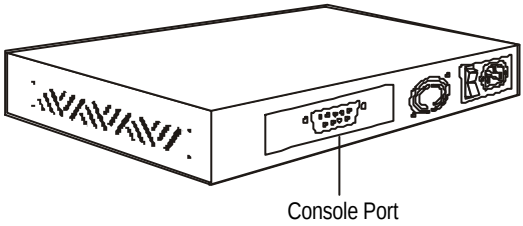

Figure 7. Console Port

Turn on the switch and press any key to view the main menu shown below:

24-port 10/100 Base Ethernet Switch

VLAN Port List

V1, 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24

V2 < empty >

V3 < empty>

V4 < empty >

Port	Mode	FLW	VLAN	Port	Mode	FLW	VLAN
1	Auto	Y	V1	13	Auto	Y	V1
2	Auto	Y	V1	14	Auto	Y	V1
3	Auto	Y	V1	15	Auto	Y	V1
4	Auto	Y	V1	16	Auto	Y	V1
5	Auto	Y	V1	17	Auto	Y	V1
6	Auto	Y	V1	18	Auto	Y	V1
7	Auto	Y	V1	19	Auto	Y	V1
8	Auto	Y	V1	20	Auto	Y	V1
9	Auto	Y	V1	21	Auto	Y	V1
10	Auto	Y	V1	22	Auto	Y	V1
11	Auto	Y	V1	23	Auto	Y	V1
12	Auto	Y	V1	24	Auto	Y	V1

VLAN/Mode/Trunking/Default (V/M/T/D) ?

Mode = Speed and Duplex mode
FL = Flow Control

This main menu shows you the default configuration of the switch. By default, all ports are set at auto-negotiation, flow control on, and all ports are grouped into V1 (VLAN group 1).

These are the valid commands:

[V]	Configure VLAN groups
[M]	Select 10/100Mbps and half or full-duplex mode
[T]	Select Trunking
[D]	Restore the default settings
[ESC]	Abort the menu at any time

VLAN

Virtual local area network (VLAN) is a network configuration in which nodes are grouped into logical, rather than physical networks. Figure 8 & 9 below shows the difference between LAN and VLAN. The segmentation in VLAN creates secured areas where sensitive information is not shared and creates its own broadcast domain within the group to effectively reduce broadcast traffic, providing higher network efficiency and security.

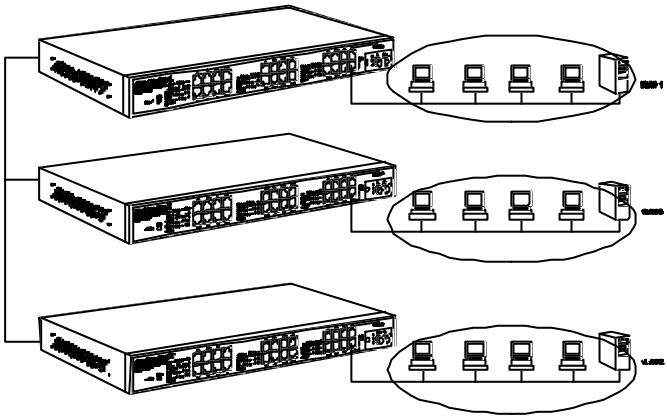

Figure 8: LAN Segmentation

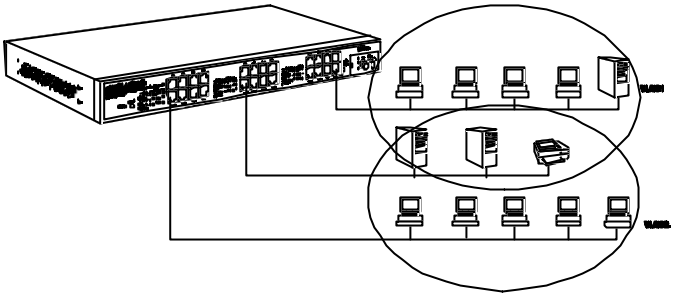

Figure 9: VLAN Segmentation

Configure VLAN Groups

Virtual Local Area Networks (VLANs) enable segmenting of the LAN without regard to physical location. Assign each port to a VLAN group or set of groups according to accessibility needs. Thus, a specific port could be in more than one VLAN group.

This switch is able to support up to four port-based Virtual LAN (VLAN) domains. Follow these steps to assign ports to a VLAN group.

- Enter **[V]** from the Main Menu
- Select a VLAN group:
  [V1], **[V2]**, **[V3],** or **[V4]**
- Enter the port #.

Note: If entering more than one port to a VLAN group, separate each port # by commas without spaces.

Only one VLAN group can be defined at a time. Repeat selecting VLAN groups and assigning ports until all ports are assigned to at least one VLAN group. Though each VLAN grouping does not need to be utilized, each port must be assigned to at least one VLAN group. Hit the **[ESC]** key when done.

To return to the default settings (in which each port is assigned to V1), enter **[D]** from the main menu. A prompt appears to verify this action.

VLAN Example:

VLAN/Mode/Trunking/Default (V/M/T/D)? **V**
Please enter the VLAN# or ESC to abort (V1-V4) -> **V1**
The current V1 is 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16
Please enter the new port list ->

- Key 1,2,3,8,10,14,15,17,18,19,20,22

Proceed with the assignment of the remainder of the ports into any VLAN grouping:

- Enter [**V2**]
- Key 1,4,5,6,8,12,13,19,21,23
- Enter [**V3**]
- Key 1,7,9,11,16,19,21,23

*Note: Until assigned, the menu displays **error** for each unassigned port. While any port is in the **error** status, the [**ESC**] key will not return the screen to the main menu. Assign each port to a VLAN grouping prior to exiting the program.*

View the results on the following illustration.

24-port 10/100 Base Ethernet Switch

VLAN Port List

V1, 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24

V2 < empty >

V3 < empty>

V4 < empty >

Port	Mode	FLW	VLAN	Port	Mode	FLW	VLAN
1	Auto	Y	V1 V2 V3	13	Auto	Y	V2
2	Auto	Y	V1	14	Auto	Y	V1
3	Auto	Y	V1	15	Auto	Y	V1
4	Auto	Y	V2	16	Auto	Y	V3
5	Auto	Y	V2	17	Auto	Y	V1
6	Auto	Y	V2	18	Auto	Y	V1
7	Auto	Y	V3	19	Auto	Y	V1 V2 V3
8	Auto	Y	V1 V2	20	Auto	Y	V1
9	Auto	Y	V3	21	Auto	Y	V2 V3
10	Auto	Y	V1	22	Auto	Y	V1
11	Auto	Y	V3	23	Auto	Y	V2 V3
12	Auto	Y	V2	24	Auto	Y	??**Error**

VLAN/Mode/Trunking/Default (V/M/T/D) ?

Note: Port 24 is not defined to any VLAN, so "Error" appears and the switch can't work normally. When setting VLAN, each port needs to be defined to at least one of the VLANs.

Port Setting

The duplex and speed settings can be altered and the flow control can be turned off to accommodate special needs.

Follow these steps to change the speed/duplex mode setting or to toggle flow control ON/OFF:

- Enter **[M]** (no **[ENTER]**)
- Select a port
- Select the media from the list that appears on the screen

Note: Only one port can be changed at a time.

Consult the following chart for a brief description:

#	**Communication Media**	**Description**
0	Flow control	Toggles off/on
1	Auto	Auto-Negotiation
2	100FD	100Mbps at full duplex mode
3	100HD	100Mbps at half duplex mode
4	10FD	10Mbps at full duplex mode
5	10HD	10Mbps at half duplex mode

Example:

- Enter **[M]**
- Select port 6
- Select communication media 5

View the results on the following illustration.

24-port 10/100 Base Ethernet Switch

VLAN Port List

V1, 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24

V2 < empty >

V3 < empty>

V4 < empty >

Port	Mode	FLW	VLAN	Port	Mode	FLW	VLAN
1	Auto	Y	V1 V2 V3	13	Auto	Y	V2
2	Auto	Y	V1	14	Auto	Y	V1
3	Auto	Y	V1	15	Auto	Y	V1
4	Auto	Y	V2	16	Auto	Y	V3
5	Auto	Y	V2	17	Auto	Y	V1
6	10HD	Y	V2	18	Auto	Y	V1
7	Auto	Y	V3	19	Auto	Y	V1 V2 V3
8	Auto	Y	V1 V2	20	Auto	Y	V1
9	Auto	Y	V3	21	Auto	Y	V2 V3
10	Auto	Y	V1	22	Auto	Y	V1
11	Auto	Y	V3	23	Auto	Y	V2 V3
12	Auto	Y	V2	24	Auto	Y	V1

VLAN/Mode/Trunking/Default (V/M/T/D) ?

When the optional module is being used, port 20 (for 065-7540) will be automatically disabled however, on the program of the switch configuration, port #20 will be showing the status of the optional module.

The port setting for the optional module is slightly different from the regular port.

Consult the following chart for a brief description:

#	**Communication Media**	**Description**
0	Flow control	Toggles off/on
1	FX FD	100Mbps at full duplex mode
2	FX HD	100Mbps at half duplex mode

MAC-based Trunking (16-Port)

The Signamax 065-7530 switch provides a MAC-Based Trunking function, which is capable of a trunking group of either 2 to 4 ports. This makes a maximum bandwidth connection of 800Mbps (Full-Duplex).

The MAC address is the address of the network interface card. When the packet is transmitting, it will contain the source address and destination address of the NIC. The combination of source and destination address give the switches a direction to determine the trunking ports to depart from if the destination address is on another switch.

Trunking Rules

There are some rules for MAC-Based Trunking setting:

a. *FO-065-7530 provides two ways of trunking selection: two port-trunking (Port #s 1 & 5) and four-port trunking (Port #s 1, 2, 5 & 6), providing a high bandwidth connection from 400Mbps to 800Mbps.*

b. *Trunking port setting is only available for Port #s 1, 2, 5, & 6.*

c. *For MAC-Based Trunking, it requires two MAC-Based Trunking switches to parallel, and all the trunking ports must be linked together in order to function properly. Therefore, one MAC-Based Trunking switch cannot have the trunking function enabled unless another MAC-Based Trunking switch has enabled its trunking ports.*

MAC-based Trunking Setting

Follow these steps to configure trunking.

- Enter **[T]**
- Select **[1]** for 2-port trunking or select **[2]** for 4-port trunking

View the results on the following illustration.

```
16-port 10/100 Base Ethernet Switch
VLAN/Mode/Trunking/Default (V/M/T/D)? T
0 disable
1. 2-port
2. 4-port
Select Trunking Group (0-2)? 2

VLAN Port List
V1 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16
V2<empty>
V3 <empty>
V4 <empty>
Port  Mode   FLW   VLAN LIST        Port  Mode   FLW   VLAN LIST
1     Auto     Y   TRUNK    V1       9     Auto     Y        V1
2     Auto     Y   TRUNK    V1      10     Auto     Y        V1
3     Auto     Y                    11     Auto     Y        V1
4     Auto     Y                    12     Auto     Y        V1
5     Auto     Y   TRUNK    V1      13     Auto     Y        V1
6     Auto     Y   TRUNK    V1      14     Auto     Y        V1
7     Auto     Y                    15     Auto     Y        V1
8     Auto     Y                    16     Auto     Y        V1

VLAN/Mode/Trunking/Default (V/M/T/D)?
```

Port-based Trunking (24-Port)

The FO-065-7540 switch provides you the capability of trunking either 2 or 4 ports, totaling either a 400 Mbps or an 800 Mbps (Full-Duplex) bandwidth connection.

Trunking Rules

There are some rules for setting Trunking:

a. *When configuring Trunking, the VLAN function will be automatically disabled for the entire switch.*

b. *FO-065-7540 provides two selections of trunking: two-port trunking (Port #s 1 & 2) and four port-trunking (Port #s 1, 2, 3 & 4), providing a high bandwidth connection from 400 Mbps to 800 Mbps.*

c. *Trunking port setting is only available for Port #s 1, 2, 3 & 4.*

d. *Trunking port must connect to any ports on another device (FO-065-7520 / 065-7530 / 065-7540) with the trunking setting disabled (Port 1, 2, 3, 4 for FO-065-7530/065-7540, Port A1, A2, A3, A4 for FO-065-7520) or any ports except Port 1, 2, 3 & 4 (or A1, A2, A3 & A4 for FO-065-7520). That means when using Trunking, the ports connected in the two switches can't be set as a trunking port at the same time; only one switch's ports need to be defined as trunking ports, and the other switch's ports have trunking disabled.*

e. *Trunking port can connect to Signamax 10BaseT Hubs, 100BaseTX Hubs, 10/100 Dual speed Hubs, Desktop Switches, or any device without a trunking function.*

Port-based Trunking Setting

Follow these steps to configure trunking.

- Enter **[T]**
- Select **[A]** for 2-port trunking or select [B] for 4-port trunking

View the results on the following illustration.

```
24-port 10/100 Base Ethernet Switch
VLAN/Mode/Trunking/Default (V/M/T/D) ?
Select Trunk Port
A. 1, 2
B. 1, 2, 3, 4
? A
Port   Mode    FLW                Port   Mode   FLW
1      Auto    Y      Trunk       13     Auto   Y
2      Auto    Y      Trunk       14     Auto   Y
3      Auto    Y                  15     Auto   Y
4      Auto    Y                  16     Auto   Y
5      Auto    Y                  17     Auto   Y
6      10HD    Y                  18     Auto   Y
7      Auto    Y                  19     Auto   Y
8      Auto    Y                  20     Auto   Y
9      Auto    Y                  21     Auto   Y
10     Auto    Y                  22     Auto   Y
11     Auto    Y                  23     Auto   Y
12     Auto    Y                  24     Auto   Y

VLAN/Mode/Trunking/Default (V/M/T/D)?
```

Port-Based and MAC-Based Trunking Difference

Port-Based Trunking was developed based upon the idea of using the physical ports on a port-based trunking switch that could work with another switch without the trunking function. This makes trunking simpler to implement in an environment where a variety of switches are used. When trunking is enabled on a Port-Based Trunking switch, it can parallel-link to another switch with or without this feature -- but once the port-based trunking is enabled, the VLAN on the Port-Based Trunking switch will be disabled.

Using the MAC-Based Trunking approach, the trunking and VLAN functions can work together without any problem. Where the trunking and VLAN functions need to be used together, the MAC-Based Trunking approach works more effectively than the Port-Based Trunking switch.

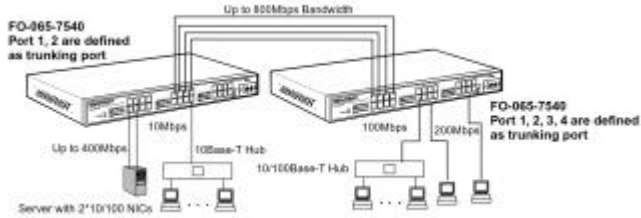

Figure 10: Trunking between two 065-7540s and Server

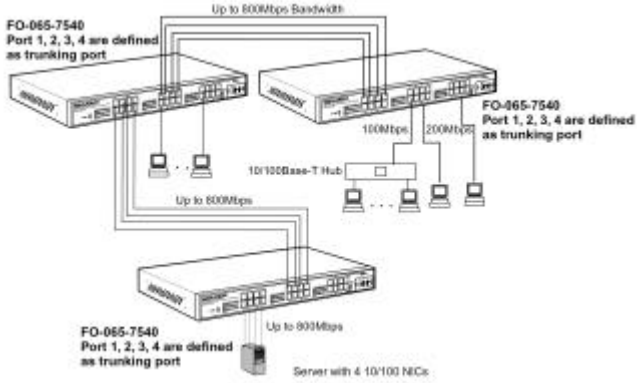

Figure 11: Cascading with Trunking Port Connection

Networking Examples

The following illustrates ways in which the 065-7530 and 065-7540 switches can be utilized:

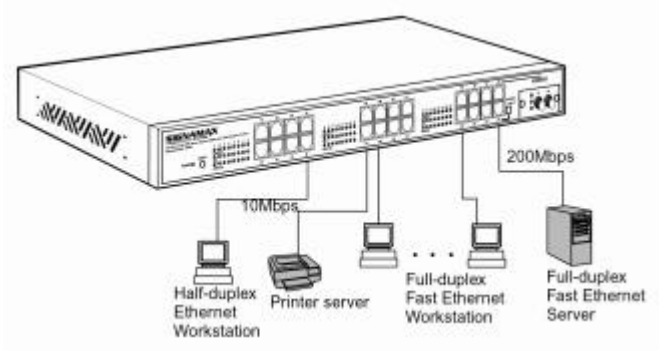

Figure 12: High-speed connections for a small workgroup

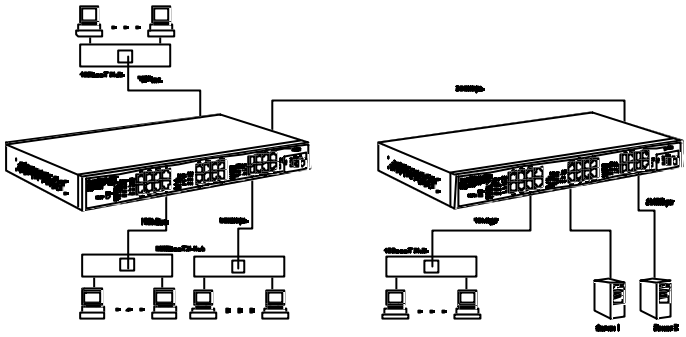

Figure 13: Collapsed backbone for workgroups

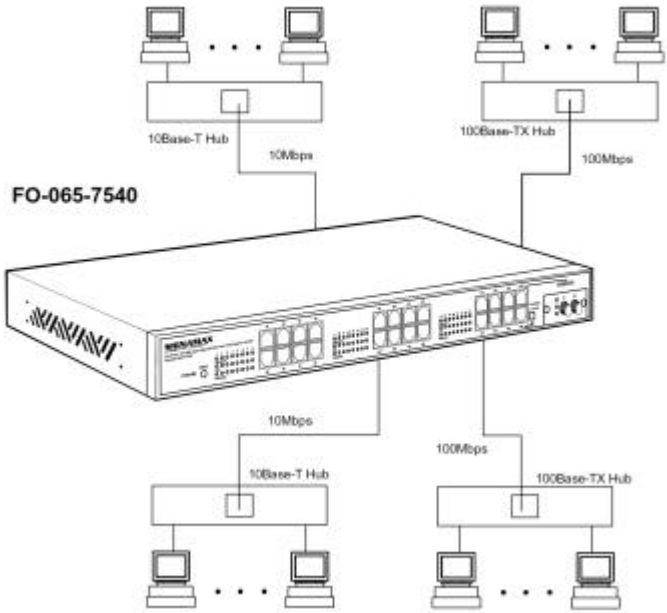

Figure 14: Bridging existing hub-based 100BaseTX and 10BaseT networks

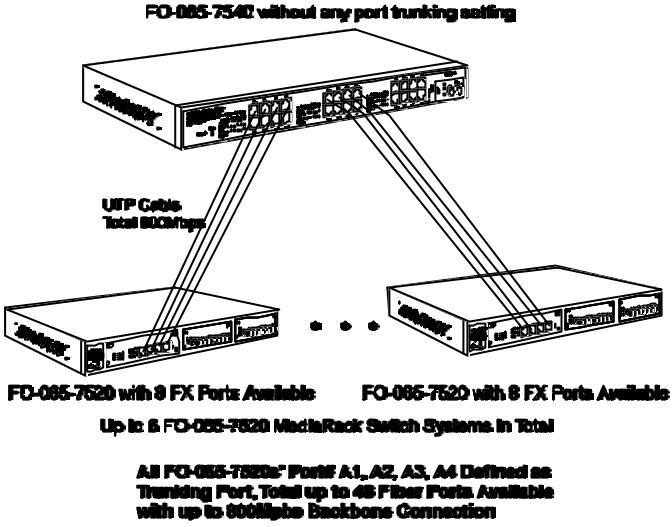
FO-065-7540 without any port trunking setting
UTP Cable
Total 800Mbps
FO-065-7520 with 8 FX Ports Available
FO-065-7520 with 8 FX Ports Available
Up to 8 FO-065-7520 MediaRack Switch Systems in Total
All FO-065-7520s' Port# A1, A2, A3, A4 Defined as
Trunking Port, Total up to 48 Fiber Ports Available
with up to 800Mpbs Backbone Connection

Figure 15: Use FO-065-7540 and FO-065-7520 (MediaRack Switch System) to Define High Fiber Port Density Configuration

4

SPECIFICATIONS

065-7530/065-7540 16/24-Port 10/100 Ethernet Switch

Applicable Standards	10BaseT, IEEE 802.3 100BaseTX & 100BaseFX, IEEE 802.3u	
Ports	16 (for 065-7530) / 24 (for 065-7540) 10/100BaseT/TX	
Speed	100BaseFX:	200Mbps full-duplex 100Mbps half-duplex
	100BaseTX:	200Mbps full-duplex 100Mbps half-duplex
	10BaseTX:	20Mbps full-duplex 10Mbps half-duplex
Performance	148,800bps forwarding rate per port for 100Mbps.	
LED Indicators	Power, Link, Activity, 100Mbps, Full-duplex, Collision	
Module LED Indicators	100/TX, 10/RX, FDX/COL	
Dimensions	440 X 205 X 45 mm Rackmount Size 17.3 X 8.1 X 1.8 in. Rackmount Size	

Weight	2.6kg/5.7lb(for 065-7530)
	2.9kg/6.4lb(for 065-7540)
Power Input	100 ~ 250 VAC, 47/63 Hz, 2 A
Power Consumption	15 W for FO-065-7530
	25 W for FO-065-7540
Operating Temperature	0° ~ 40°C
	32° ~ 104°F
Humidity	10 ~ 90%, non-condensing
Altitude	3048 m
	10,000 ft
Emissions	FCC part 15 Class A, CISPR Class A, VCCI-I CE Mark
Safety	UL, CSA, TUV/GS

A

CONNECTOR PINOUTS

Pin arrangement of RJ-45 connectors

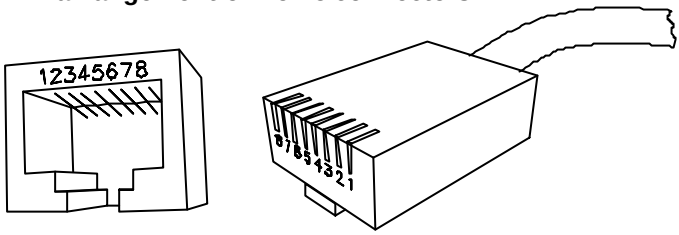

Figure 16: RJ-45 Connector and Cable Pins

The following table lists the pinout of 10/100BaseT/TX ports:

Table 6: Connector Pinouts

Pin	Regular Ports	Uplink port
1	Input Receive Data +	Output Transmit Data +
2	Input Receive Data -	Output Transmit Data -
3	Output Transmit Data +	Input Receive Data +
4	NC	NC
5	NC	NC
6	Output Transmit Data -	Input Receive Data -
7	NC	NC
8	NC	NC

B

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